

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of the claims in this application:

1. (Currently Amended) A method comprising:

at a certain protocol layer, receiving a first packet data message from an upper protocol layer, which first packet data message belongs to a first packet data protocol context characterised by certain first connection information associated with a first service access point indicator,

at said certain protocol layer, receiving a second packet data message from an upper protocol layer, which second packet data message belongs to a second packet data protocol context characterised by certain second connection information associated with a second service access point indicator,

reordering said first packet data message and said second packet data message at said certain protocol layer according to a relative urgency of transmission of said first and second packet data protocol contexts and according to the first and second service access point indicators, and

delivering said first packet data message and said second packet data message further from said certain protocol layer in reordered order,

wherein the method is performed by a mobile station to transfer user data in a wireless packet data network.

2. (Previously Presented) A method according to claim 1, wherein receiving the first packet data message and receiving the second packet data message precede configuring comprising: generating packet data protocol context activation messages for informing the network about the activation of packet data protocol contexts for user data transmission, and transmitting packet data protocol context activation messages to the network to associate the packet data protocol contexts to the first packet data message and to the second packet data message.

3. (Previously Presented) A method according to claim 2, wherein the method further comprises requesting an uplink resource for transmitting said packet data protocol context activation messages.

4. (Previously Presented) A method according to claim 3, wherein the method further comprises requesting an uplink temporary block flow for transmitting protocol activation packet data unit messages.

5. (Previously Presented) A method according to claim 4, wherein receiving comprises a preliminary checking that said first packet data messages and said second packet data messages are received in-sequence order according to said connection information of said first packet data message or said second packet data message.

6. (Previously Presented) A method according to claim 5, wherein the first packet data message containing first user data belongs to first packet data protocol context, and the second packet data message containing second user data belongs to second packet data protocol context.

7. (Previously Presented) A method according to claim 6, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data message and the second packet data message are reordered according to the urgency of transmission profile, if the first connection information differs from the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile.

8. (Previously Presented) A method according to claim 7, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data unit message and the second packet data unit message are reordered according to the urgency of transmission profile, if the first connection information is equal to the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile using other connection information.

9. (Previously Presented) A method according to claim 8, wherein reordering further comprises buffering said second packet data messages into a packet data transfer queue for a period of time said first packet data message transfer is on-going, and delivering further comprises delivering said second packet data messages after said first packet data message delivery is completed.

10. (Previously Presented) A method according to claim 9, wherein the wireless packet data network is comprised of a general packet radio service network, wherein said first packet data messages and said second packet data messages are logical link controller packet data unit messages, and where the protocol activation message activates a general packet radio service mobility management unit to associate the packet data protocol context to said first packet data messages and to said second packet data messages.

11. **(Currently Amended)** A method according to claim 10, wherein a logical link controller unit assigns a the first service access point indicator of a general packet radio service mobility management unit to associate said first connection information of said first packet data message, and a the second service access point indicator of a general packet radio service mobility management unit to associate said second connection information of said second packet data message; said first service access point indicator value being different than said second service access point indicator value.

12. **(Canceled).**

13. **(Currently Amended)** A method according to claim ~~12~~ 11, wherein a radio link control/medium access control unit reorders said first packet data message and said second packet data message according to said first service access point indicator value and said second service access point indicator value.

14. (Previously Presented) A method according to claim 13, wherein a radio link control/medium access control unit reads a used service access point indicator value of the

logical link controller packet data unit message from the logical link controller packet data unit message.

15. (Previously Presented) A method according to claim 14, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit initiates transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile.

16. (Previously Presented) A method according to claim 14, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit starts a timer with a predetermined timeout value and after said timeout value, said radio link control/medium access control unit initiates transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile if said radio link control/medium access control unit has not received a new logical link controller packet data unit message carrying high priority urgency of transmission profile during said predetermined timeout value.

17. (Previously Presented) A method according to claim 14, wherein during transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile the radio link control/medium access control unit interrupts said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message carrying high priority urgency of transmission profile during said transmission, and said radio link control/medium access control unit initiates transmitting said new logical link controller packet data unit message carrying high priority urgency of transmission profile.

18. (Previously Presented) A method according to claim 17, wherein said radio link control/medium access control unit buffers said logical link controller packet data unit messages not carrying high priority urgency of transmission profile by generating a logical link controller packet data unit border into the radio link control data block.

19. (Previously Presented) A method according to claim 17, wherein during transmitting logical link controller packet data unit message with service access point indicator value 7 not carrying high priority urgency of transmission profile, the radio link control/medium access control unit interrupts said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message with service access point indicator value 3 carrying high priority urgency of transmission profile during said transmission, said radio link control/medium access control unit buffers said logical link controller packet data unit message with service access point indicator value 7 not carrying high priority urgency of transmission profile and initiates transmitting said new logical link controller packet data unit message with service access point indicator value 3 carrying high priority urgency of transmission profile.

20. (Previously Presented) A method according to claim 11, wherein a radio link control/medium access control unit initiates an uplink temporary block flow and indicates to a radio link control /medium access control of the network if a radio link control ACK or a radio link control UNACK mode is to be used when transmitting packet data messages.

21. (Previously Presented) A method according to claim 20, wherein radio link control/medium access control of a mobile station orders said first packet data message to be delivered in the radio link control UNACK mode and said second packet data to be delivered in the radio link control ACK mode.

22. (Previously Presented) A method according to claim 9, wherein receiving comprises a preliminary checking that said first packet data messages and said second packet data messages are received in-sequence order according to a window number inside a logical link control header of said first packet data message or said second packet data message.

23. **(Currently Amended)** A mobile station comprising
a transceiver configured to transmit and receive packet data messages,

a controller configured to generate packet data protocol context activation messages for informing a network about the activation of packet data protocol contexts for user data transmission, and

a layered transmission protocol arrangement comprising a certain protocol layer entity and higher protocol layer entities,

where said certain protocol layer entity is configured to receive packet data messages belonging to different packet data protocol contexts from at least one upper protocol layer and associated with a service access point indicators, to reorder packet data messages received from at least one upper protocol layer according to a relative urgency of transmission of packet data protocol contexts that the packet data messages belong to and according to the associated service access point indicators, and to deliver packet data messages further from said certain protocol layer in reordered order.

24. (Previously Presented) A mobile station according to claim 23, wherein the controller requests an uplink temporary block flow for transmitting said packet data protocol context activation messages.

25. (Previously Presented) A mobile station according to claim 24, wherein the controller, during reception, is arranged to check that said first packet data messages and said second packet data messages are received in-sequence order according to a connection information of said first packet data message or said second packet data message.

26. (Previously Presented) A mobile station according to claim 25, wherein said first packet data message containing first user data is arranged to belong to said packet data protocol context and said second packet data unit message containing second user data is arranged to belong to said packet data protocol context.

27. (Previously Presented) A mobile station according to claim 26, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data

message and the second packet data message are arranged to be reordered according to the urgency of transmission profile, if the first connection information differs from the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile.

28. (Previously Presented) A mobile station according to claim 27, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data unit message and the second packet data unit message are arranged to be reordered according to the urgency of transmission profile, if the first connection information is equal to the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile using other connection information.

29. (Previously Presented) A mobile station according to claim 28, wherein the layered transmission protocol arrangement is arranged to buffer said second data messages into a packet data transfer queue for a period of time said first packet data message transfer is on-going, and to deliver said second packet data messages after said first packet data delivery is completed.

30. (Previously Presented) A mobile station according to claim 29, wherein the wireless packet data network is arranged to comprise of a general packet radio service network, wherein said first packet data messages and said second packet data messages are logical link controller packet data unit messages, and where the protocol activation message is arranged to activate a general packet radio service mobility management unit to associate the packet data protocol context to said first packet data messages and to said second packet data messages.

31. (Previously Presented) A mobile station according to claim 30, wherein a logical link controller unit is arranged to assign a first service access point indicator of a general packet radio service mobility management unit to be associated to said first connection information of said first packet data message, and a second service access point indicator of a general packet radio service mobility management unit to be associated to said second connection information of said

second packet data message; said first service access point indicator value being different than said second service access point indicator value.

32-33. (**Canceled**).

34. (**Currently Amended**) A mobile station according to claim 33 31, wherein a radio link control/medium access control unit is arranged to read a used service access point indicator value of the logical link controller packet data unit message from the logical link controller packet data unit message.

35. (Previously Presented) A mobile station according to claim 34, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit is arranged to initiate transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile.

36. (Previously Presented) A mobile station according to claim 34, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile, the radio link control/medium access control unit is arranged to start a timer with a predetermined timeout value and after said timeout value, said radio link control/medium access control unit is arranged to initiate transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile if said radio link control/medium access control unit has not received a new logical link controller packet data unit message carrying high priority urgency of transmission profile during said predetermined timeout value.

37. (Previously Presented) A mobile station according to claim 34, wherein during transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile, the radio link control/medium access control unit is arranged to interrupt said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message carrying high priority urgency of transmission profile during

said transmission, and said radio link control/medium access control unit is arranged to initiate transmitting said new logical link controller packet data unit message carrying high priority urgency of transmission profile.

38. (Previously Presented) A mobile station according to claim 37, wherein said radio link control/medium access control unit is arranged to buffer said logical link controller packet data unit messages not carrying high priority urgency of transmission profile by generating a logical link controller packet data unit border into the radio link control data block.

39. (Previously Presented) A mobile station according to claim 37, wherein during transmitting logical link controller packet data unit message with a service access point indicator of 7 not carrying high priority urgency of transmission profile, the radio link control/medium access control unit is arranged to interrupt said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message with a service access point indicator of 3 carrying high priority urgency of transmission profile during said transmission, said radio link control/medium access control unit is arranged to buffer said logical link controller packet data unit message with a service access point indicator of 7 not carrying high priority urgency of transmission profile and to initiate transmitting said new logical link controller packet data unit message with a service access point indicator of 3 carrying high priority urgency of transmission profile.

40. (Previously Presented) A mobile station according to claim 31, wherein a radio link control/medium access control unit is arranged to initiate an uplink temporary block flow and arranged to indicate to a radio link control/medium access control of the network if a radio link control ACK or a radio link control UNACK mode is to be used when transmitting packet data messages.

41. (Previously Presented) A mobile station according to claim 40, wherein radio link control/medium access control is arranged to order said first packet data message to be delivered in the radio link control UNACK mode and said second packet data to be delivered in the radio

link control ACK mode.

42. (Previously Presented) A mobile station according to claim 29, wherein the controller, during reception, is arranged to check that said first packet data messages and said second packet data messages are received in-sequence order according to a window number inside a logical link control header of said first packet data message or said second packet data message.

43. (**Currently Amended**) A method comprising:

at a certain protocol layer, receiving a first packet data message from an upper protocol layer, which first packet data message belongs to a first packet data protocol context characterised by certain first connection information associated with a first service access point indicator,

at said certain protocol layer, receiving a second packet data message from an upper protocol layer, which second packet data message belongs to a second packet data protocol context characterised by certain second connection information associated with a second service access point indicator,

reordering said first packet data message and said second packet data message at said certain protocol layer according to a relative urgency of transmission of said first and second packet data protocol contexts and according to the first and second service access point indicators, and

delivering said first packet data message and said second packet data message further from said certain protocol layer in reordered order,

wherein the method is performed by a network element of a wireless network.

44. (Previously Presented) A method according to claim 43, wherein receiving said first packet data message and said second packet data message precede configuring comprising receiving packet data protocol context activation messages for the activation of packet data protocol contexts for user data transmission.

45. (Previously Presented) A method according to claim 44, wherein receiving said first packet data message and said second packet data message comprise a preliminary checking that said first packet data messages and said second packet data messages are received in-sequence

order according to said connection information of said first packet data message or said second packet data message.

46. (Previously Presented) A method according to claim 45, wherein the first packet data message containing first user data belongs to first packet data protocol context, and the second packet data message containing second user data belongs to second packet data protocol context.

47. (Previously Presented) A method according to claim 46, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data message and the second packet data message are reordered according to the urgency of transmission profile, if the first connection information differs from the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile.

48. (Previously Presented) A method according to claim 47, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data unit message and the second packet data unit message are reordered according to the urgency of transmission profile, if the first connection information is equal to the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile using other connection information.

49. (Previously Presented) A method according to claim 48, wherein the method further comprises: reordering comprising buffering said second packet data messages into a packet data transfer queue for a period of time said first packet data message transfer is on-going, and delivering further comprises delivering said second packet data messages after said first packet data message delivery is completed.

50. (**Currently Amended**) A method according to claim 49, wherein a logical link controller

unit assigns a the first of a general packet radio service mobility management unit to associate said first connection information of said first packet data message, and a the second service access point indicator of a general packet radio service mobility management unit to associate said second connection information of said second packet data message; said first service access point indicator value being different than said second service access point indicator value.

51. **(Canceled).**

52. **(Currently Amended)** A method according to claim ~~54~~ 50, wherein a radio link control/medium access control unit reorders said first packet data message and said second packet data message according to said first service access point indicator value and said second service access point indicator value.

53. (Previously Presented) A method according to claim 52, wherein a radio link control/medium access control unit reads a used service access point indicator value of the logical link controller packet data unit message from the logical link controller packet data unit message.

54. (Previously Presented) A method according to claim 53, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit initiates transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile.

55. (Previously Presented) A method according to claim 53, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit starts a timer with a predetermined timeout value and after said timeout value, said radio link control/medium access control unit initiates transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile if said radio link control/medium access control unit has not received a new logical link controller packet data unit message carrying high priority urgency of

transmission profile during said predetermined timeout value.

56. (Previously Presented) A method according to claim 53, wherein during transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile the radio link control/medium access control unit interrupts said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message carrying high priority urgency of transmission profile during said transmission, and said radio link control/medium access control unit initiates transmitting said new logical link controller packet data unit message carrying high priority urgency of transmission profile.

57. (Previously Presented) A method according to claim 56, wherein said radio link control/medium access control unit buffers said logical link controller packet data unit messages not carrying high priority urgency of transmission profile by generating a logical link controller packet data unit border into the radio link control data block.

58. (Previously Presented) A method according to claim 56, wherein during transmitting logical link controller packet data unit message with a service access point indicator value 7 not carrying high priority urgency of transmission profile, the radio link control/medium access control unit interrupts said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message with a service access point indicator value 3 carrying high priority urgency of transmission profile during said transmission, said radio link control/medium access control unit buffers said logical link controller packet data unit message with service access point indicator value 7 not carrying high priority urgency of transmission profile and initiates transmitting said new logical link controller packet data unit message with service access point indicator value 3 carrying high priority urgency of transmission profile.

59. (Previously Presented) A method according to claim 50, wherein a radio link control/medium access control unit notifies the indication from a mobile station if a radio link

control ACK or a radio link control UNACK mode is to be used when transmitting packet data messages.

60. (Previously Presented) A method according to claim 59, wherein radio link control/medium access control of the mobile station orders said first packet data message to be delivered in the radio link control UNACK mode and said second packet data to be delivered in the radio link control ACK mode.

61. (Previously Presented) A method according to claim 49, wherein transferring comprises a preliminary checking that said first packet data messages and said second packet data messages are received in-sequence order according to a window number inside a logical link control header of said first packet data message or said second packet data message.

62. (Previously Presented) A method according to claim 43, wherein a network element of a wireless network for transferring the packet data between a mobile station and a wireless packet data network is one of the following network elements: a serving general packet radio support node, a base station controller, mobile switching center and a packet control unit comprising a radio link control/medium access control unit.

63. (**Currently Amended**) A network element of a wireless network comprising:
a controller configured to generate packet data protocol context activation messages for informing the network about the activation of packet data protocol contexts for user data transmission, and
a layered transmission protocol arrangement comprising a certain protocol layer entity and higher protocol layer entities,
where said certain protocol layer entity is configured
to receive packet data messages belonging to different packet data protocol contexts from at least one upper protocol layer and associated with service access point indicators,
to reorder packet data messages received from at least one upper protocol layer according to a relative urgency of transmission of packet data protocol contexts that the packet data messages

belong to and according to the associated service access point indicators, and

to deliver packet data messages further from said certain protocol layer in reordered order, wherein the method is performed by a network element of a wireless network to transfer user data.

64. (Previously Presented) A network element according to claim 63, wherein the controller receives an uplink temporary block flow for configuring said packet data protocol context activation messages.

65. (Previously Presented) A network element according to claim 64, wherein the controller, during reception, is arranged to check that said first packet data messages and said second packet data messages are received in-sequence order according to a connection information of said first packet data message or said second packet data message.

66. (Previously Presented) A network element according to claim 65, wherein said first packet data message containing first user data is arranged to belong to said packet data protocol context and said second packet data unit message containing second user data is arranged to belong to said packet data protocol context.

67. (Previously Presented) A network element according to claim 66, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data message and the second packet data message are arranged to be reordered according to the urgency of transmission profile, if the first connection information differs from the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile.

68. (Previously Presented) A network element according to claim 67, wherein said first and second user data comprising urgency of transmission profile, wherein the urgency of transmission profile includes an additional quality of service information of the user data, the first packet data

unit message and the second packet data unit message are arranged to be reordered according to the urgency of transmission profile, if the first connection information is equal to the second connection information, by first delivering the packet data unit message comprising higher urgency of transmission profile using other connection information.

69. (Original) A network element according to claim 68, wherein said layered transmission protocol arrangement is arranged to buffer said second data messages into a packet data transfer queue for a period of time said first packet data message transfer is on-going, and to deliver said second packet data messages after said first packet data delivery is completed.

70. (Previously Presented) A network element according to claim 69, wherein a logical link controller unit is arranged to assign a first service access point indicator of a general packet radio service mobility management unit to associate said first connection information of said first packet data message, and a second service access point indicator of a general packet radio service mobility management unit to associate said second connection information of said second packet data message; said first service access point indicator value being different than said second service access point indicator value.

71-72. **(Canceled)**.

73. **(Currently Amended)** A network element according to claim ~~72~~ 70, wherein a radio link control/medium access control unit is arranged to read a used service access point indicator value of the logical link controller packet data unit message from the logical link controller packet data unit message.

74. (Previously Presented) A network element according to claim 73, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit is arranged to initiate transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile.

75. (Previously Presented) A network element according to claim 73, wherein after sending the last logical link controller packet data unit message carrying high priority urgency of transmission profile the radio link control/medium access control unit is arranged to start a timer with a predetermined timeout value and after said timeout value, said radio link control/medium access control unit initiates transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile if said radio link control/medium access control unit has not received a new logical link controller packet data unit message carrying high priority urgency of transmission profile during said predetermined timeout value.

76. (Previously Presented) A network element according to claim 73, wherein during transmitting logical link controller packet data unit messages not carrying high priority urgency of transmission profile the radio link control/medium access control unit is arranged to interrupt said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message carrying high priority urgency of transmission profile during said transmission, and said radio link control/medium access control unit initiates transmitting said new logical link controller packet data unit message carrying high priority urgency of transmission profile.

77. (Previously Presented) A network element according to claim 76, wherein said radio link control/medium access control unit is arranged to buffer said logical link controller packet data unit messages not carrying high priority urgency of transmission profile by generating a logical link controller packet data unit border into the radio link control data block.

78. (Previously Presented) A network element according to claim 76, wherein during transmitting logical link controller packet data unit message with service access point indicator value 7 not carrying high priority urgency of transmission profile, the radio link control/medium access control unit is arranged to interrupt said transmission if said radio link control/medium access control unit receives a new logical link controller packet data unit message with service access point indicator value 3 carrying high priority urgency of transmission profile during said

transmission, said radio link control/medium access control unit buffers said logical link controller packet data unit message with service access point indicator value 7 not carrying high priority urgency of transmission profile and initiates transmitting said new logical link controller packet data unit message with service access point indicator value 3 carrying high priority urgency of transmission profile.

79. (Previously Presented) A network element according to claim 70, wherein a radio link control/medium access control unit is arranged to notify the indication from a mobile station if a radio link control ACK or a radio link control UNACK mode is to be used when transmitting packet data messages.

80. (Previously Presented) A network element according to claim 79, wherein radio link control/medium access control is arranged to order said first packet data message to be delivered in the radio link control UNACK mode and said second packet data to be delivered in the radio link control ACK mode.

81. (Previously Presented) A network element according to claim 69, wherein the controller, during reception, is arranged to check that said first packet data messages and said second packet data messages are received in-sequence order according to a window number inside a logical link control header of said first packet data message or said second packet data message.

82. (Previously Presented) A network element according to claim 63, wherein the network element is arranged to be one of the following network elements: a serving general packet radio support node, a base station controller, mobile switching center and a packet control unit comprising a radio link control/medium access control unit.